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CENTRAL INTELLIGENCE AGENCY

S-E-C-R-E-T

50X1-HUM

COUNTRY Poland/USSR/Soviet Bloc

SUBJECT Reorganization of the Polish Long-Distance Cable System

REPORT

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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

1. The present long-distance cable system in Poland is now being completely reorganized so that the Polish network will be connected to the international system in a manner approved by international agreements and recommendations. This will be done in accordance with the recommendation of CCITT /"Central Conference Internationale de Telefon & Telegraf" - Postal, Telegraph & Telephone International/ and with the approval of the Socialist (Communist) Ministers' Conference which met in Prague, possibly during June 1958. Since it is certain that the new cable organization does not receive its instructions solely from CCITT, it is believed that additional discussions on this subject took place between the Soviet Union and other Communist countries. It was learned after the Prague Conference that the member nations of this conference would supply the needs of the entire Communist Bloc on an allocated basis, i.e., Czechoslovakia - amplifiers, Hungary - radio sets, East Germany - coaxial cables, Poland - raw materials and coal, and so forth. Then in the latter part of 1958 and the beginning of 1959 technical conversations took place in the offices of the Polish Ministry of Communications to the effect that a new factory would be built to manufacture amplifiers in Poland and also that a Polish cable factory had completed the testing of prototype coaxial cables.

2. The Polish long-distance cable system consists partly of very old and partly of completely new long-distance lines. The old long-distance lines are mainly multicoree acoustic cables which were built according to the Standard (DM) or Siemens (Vierer) systems. All these cables consist of wrapped wires. These wires will not last much longer as they have been in use for 20 to 30 years. These lines are built up with a carrier frequency, in other words two or four, four-lead-cables, and on the most important lines they are "depupinisirt" (sic) and adjusted to the 12-channel carrier frequency system (in other words, to 120 Kcs). The same is true of other existing lines. The new lines, from approximately 1948 up to the present time, are built in a mixed system. The cables in these lines consist of 8 to 53 or more pairs. Cables from 8 to 15 wires use primarily a carrier frequency (in the 12, 24, or 60 channel system). The other cables consist of acoustic pairs and in addition also of

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4 to 7 Vierer wires for carrier frequency; at least the acoustic pairs of these cables are wrapped with 100/50 mH/km. The effective capacity of each sheaf of cables is 26.5 nF/km except for the radio pairs which carry 38 nF/km.

3. Most new lines consist of two cables - one for each transmission direction.

   a. Warsaw to Brest: There are on the first section from Warsaw to Minsk Mazowiecki - two 51 x 2 cables; on the second section to Siedlce - two 37 x 2 cables; on the third section to Biala Podlaska two 27 x 2 cables; and on the last section to Brest two 14 x 2 cables. The two cables are buried along the entire stretch. Each cable along the Warsaw to Biala Podlaska section has 7 Vierer wires and from Biala Podlaska to Brest each cable has 4 Vierer wires for carrier frequency in the 24-channel system. This long-distance line will soon have been in use for five years. In the beginning these lines were equipped with Soviet K 24 amplifiers, but this may have been changed slightly in production. There are eight amplifier stations along the Polish section of this line.

   b. Warsaw to Bialystok to the Soviet border: On the first section from Warsaw to Radzymin - two 53 x 2 cables; on the second section up to Bialystok - possibly two 27 x 2 cables; and on the last section to the Soviet border - two 14 x 2 cables. Four Vierer wires for carrier frequency using the 24-channel system are contained in each cable along the whole stretch. The type of amplifiers used on this line is not known.

   c. Two new lines have been built between the eastern border and Lublin and the eastern border and Sandomierz. Both lines are connected with Warsaw through the old long-distance cables.

   d. Between Warsaw and Katowice: A new line has also been built on this stretch. This line consists of 15 x 2 long-distance cables which are used only for carrier frequency.

   e. There are various long-distance connections between Warsaw and Berlin, but mainly old cables. A new long-distance line has been built between Slubice, Poznan (Posen), and Bydgoszcz (Bromberg). It consists of two cables which have 4 to 7 Vierer wires for the carrier frequency. There are other new long-distance lines to the west of Warsaw. Many old long-distance lines have been unspooled in this area, i.e., west from Warsaw.

4. Not much has been heard about any new radio transmitter in recent months /that is to say, prior to March 1959, the date of this report/, but the first microwave-radio relay equipment has been installed on the Warsaw-Lodz stretch. These stations are engaged in television testing. The next link will be between Warsaw and Katowice. The equipment for these two links comes from East Germany.

5. A coaxial cable between Lvov (Lemberg), USSR, Rzeszow, Katowice, Wroclaw (Breslau), East Germany, and Czechoslovakia has been proposed. This line will probably be installed between 1960 and 1962. The transmission equipment and the coaxial cable will be delivered by the Soviet Union. These installations are to operate on a 960 or 1800-channel carrier frequency system.

6. The new long-distance network is about to go into operation in Poland. As a part of this network an automatic, high-speed interconnecting system is in preparation. Six large cities are to be included in this system: Warsaw, Lodz, Katowice, Wroclaw, Poznan, and Bydgoszcz. These cities were first interconnected by already existing long-distance lines. In 1957 it was proposed that these cities should be connected by coaxial cables. It is believed that the new long-distance exchanges will be built in these cities and that they are already under construction in Warsaw, Bydgoszcz, Lodz, and Katowice. These exchanges are being prepared for long-distance transit service. The network between these six cities will use only the carrier frequency system. All international conversations through Poland are now being led and in the future will be led through Warsaw. For this purpose

*Vierer: four-wire units.

a new exchange for international long-distance calls is under construction in Warsaw. A new meter-guage is being built at each of these long-distance exchanges.

7. A technical conference to discuss the problems concerning impulse measuring instruments or gauges for the measuring rooms held in February 1959 brought forth the following questions: 50X1-HUM

a. As a result of the policy guidance issued by the CCITT ( ) it should be determined whether factories produce gauges for measuring the amplifier section (repeater portion) of coaxial cables - if not, then where in the world are they manufactured? Such gauges were manufactured - Transimetre UO 3, Type Chantier or Type Coblerie Societe Anonyme de Telecommunication - at a cost of 20,000 pounds. Is it perhaps with the help of these gauges that measuring at a distance is done? What is the weight and price of these gauges? 50X1-HUM

b. After having changed to coaxial cables, which gauges has the post and telegraph service used? Is the post and telegraph service satisfied with this gauge? Most questions on this subject concerned impulse gauges. 50X1-HUM 50X1-HUM

c. Questions were asked concerning the measuring rooms. Does the post and telegraph service anticipate using instruments for circuit measurement in semi or fully automatic long-distance service, as, for example, the "robot" (automatic measuring) that is done 50X1-HUM

d. There was discussion of the receipt of gauges from other countries. It was asked what methods factories in other countries use to quickly locate the damage if, on receipt, such gauges are found to be damaged. Are oscillographic or other means used to quickly locate the damage?

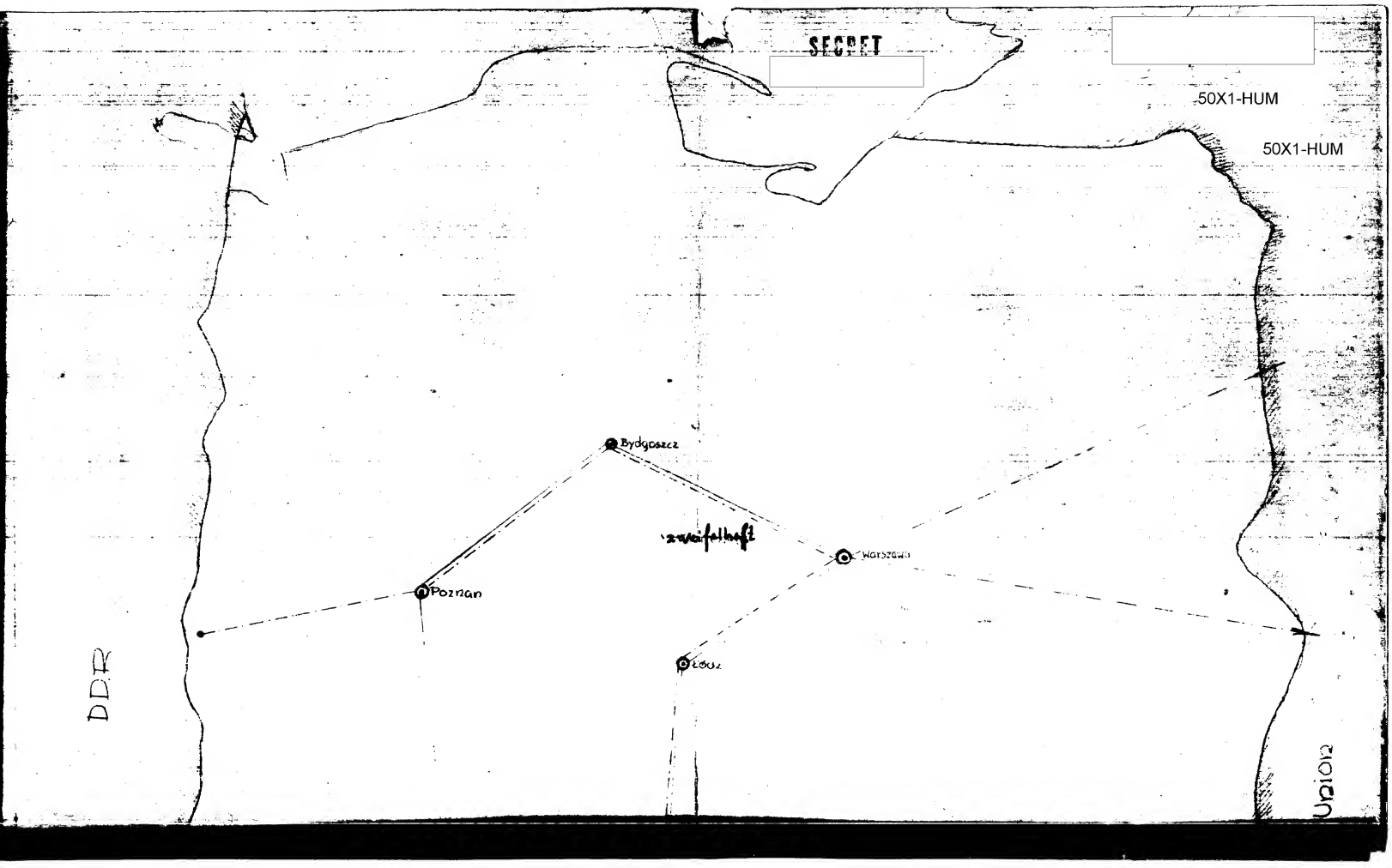
e. What measuring instruments are used in measuring carrier frequency installations over 12 mcs? Which measuring instruments are used for intermediate frequency installations?

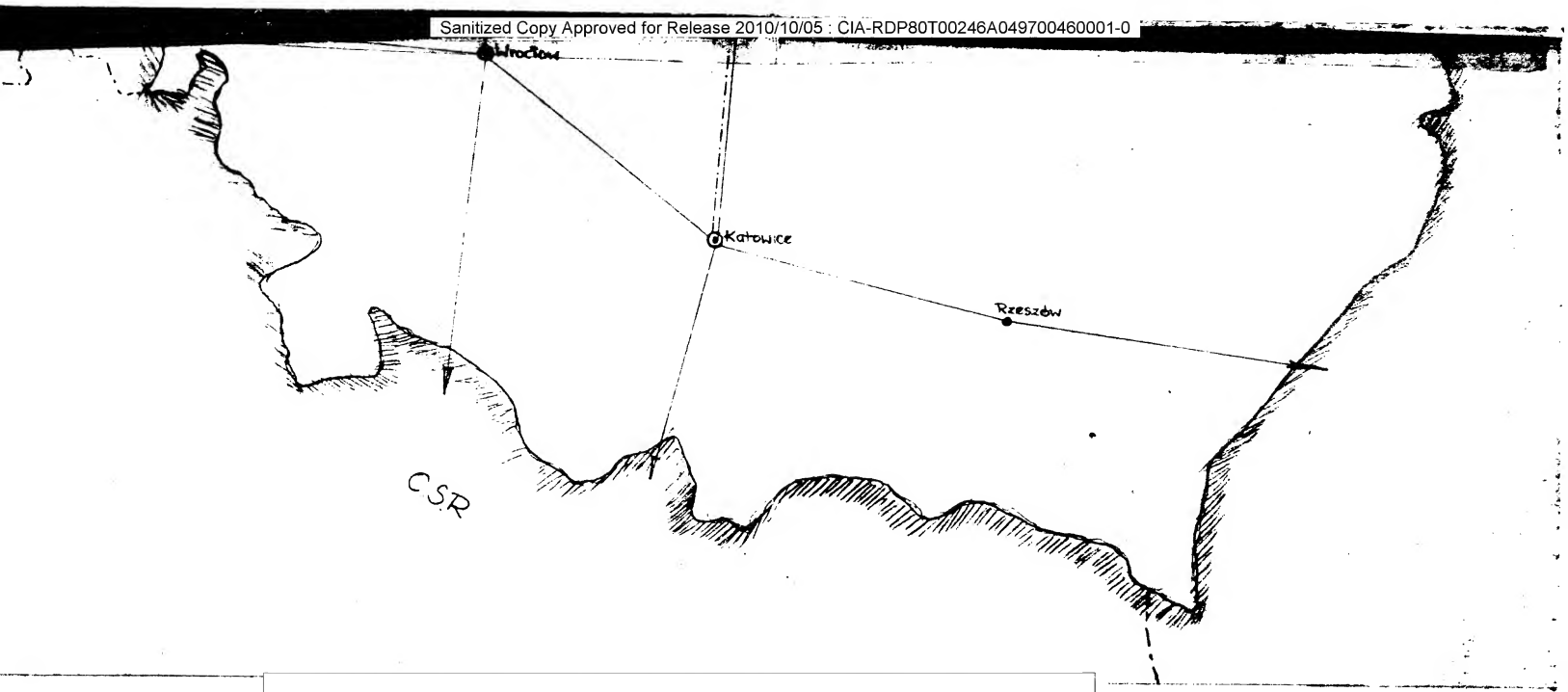
f. Along what line does the company "radiometer" specialize?

g. Are the new models of oscillation gauge BKF 5 and frequency analyzer FRA in production?

10. As of the latter part of 1958 the Soviets had long-distance signal brigades located at every important, large amplifier station where long-distance lines cross. There were many such amplifier stations. Some of them are Slupsk (Stolp), Koszalin (Koeslin), Szczecin (Stettin), Poznan, Zielona Gora (Grünberg), Legnica, Jelenia Gora (Hirschberg), Wroclaw, Opole (Oppeln), Gdansk (Danzig), Bydgoszcz, Krosniewice, Lodz, Czestochowa, Katowice, Olsztyn, Zegrze u.Warsaw, Warsaw, Radom, Sandomierz, Krakow, Bialystok, Siedlce, Lublin, and Rzeszow. In addition, the Polish Army has an independent cable system linking its units, airfields, etc., and a civilian system. The military system is constantly in operation and at least two to four times a year and occasionally more often, alert orders were issued for testing purposes over the entire Polish system.

11. A sketch showing that part of the Polish network where an automatic, high-speed interconnecting system is in preparation 50X1-HUM





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